Chapter Nine: Contents
(Configuration File Keys – LA-UR 00-1725)

Chapter Nine—Configuration File Keys

1. INTRODUCTION

In an effort to help users who have become experienced with using TRANSIMS, we have collected all of the TRANSIMS configuration file keys into this section. The keys are labeled by volume and chapter. If a key is not sent in the current configuration file, the configuration file key CONFIG_DEFAULT_FILE specifies the name of a configuration file whose keys and values are to be used.

1.1 Examples

Figures 1 and 2 give examples of typical configuration and default configuration files, respectively. Note that when keys are duplicated in these files, the value in the non-default file takes precedence.

Fig. 1. Example configuration file.

```
CONFIG_DEFAULT_FILE /home/transims/allstr-run/default.config

NET_PROCESS_LINK_TABLE Process_Link.minimal.tbl

ROUTER_MAX_DEGREE 15

CA_BIN
/home/projects/transims/config/integration/bin/ARCH.PVM.SUN4SOL2/CA
CA_SIM_STEPS 7200
CA_MASTER_MESSAGE_LEVEL 1

PAR_COMMUNICATION    PVM
PAR_SLAVES 1
```

Fig. 2. Example default configuration file.

```
##################### GLOBAL PARAMETERS #####################

# The width of a lane in meters
# float
GBL_LANE_WIDTH 3.5

# The length of a cell in meters
# float
GBL_CELL_LENGTH 7.5


##################### NETWORK PARAMETERS #####################

NET_DIRECTORY                 /home/transims/allstr-run/network/

NET_NODE_TABLE                Node.tbl
NET_LINK_TABLE                Link.tbl
NET_POCKET_LANE_TABLE         Pocket_Lane.tbl
====
NET_LANE_USE_TABLE            Lane_Use.tbl
NET_SPEED_TABLE               Speed.tbl
NET_LANE_CONNECTIVITY_TABLE   Lane_Connectivity.tbl
NET_TURN_PROHIBITION_TABLE    Turn_Prohibition.tbl
NET_UNSIGNALIZED_NODE_TABLE   Unsignalized_Node.tbl
NET_SIGNALIZED_NODE_TABLE     Signalized_Node.tbl
NET_PHASING_PLAN_TABLE        Phasing_Plan.tbl
NET_TIMING_PLAN_TABLE         Timing_Plan.tbl
NET_SIGNAL_COORDINATOR_TABLE  Signal_Coordinator.tbl
NET_DETECTOR_TABLE            Detector.tbl
NET_BARRIER_TABLE             Barrier.tbl
NET_PARKING_TABLE             Parking.tbl
NET_TRANSIT_STOP_TABLE        Transit_Stop.tbl
NET_ACTIVITY_LOCATION_TABLE   Activity_Location.tbl
NET_PROCESS_LINK_TABLE        Process_Link.tbl
NET_STUDY_AREA_LINKS_TABLE    Study_Area_Link.tbl


##################### SYNTHETIC POPULATION PARAMETERS #####################

POP_NUMBER_HH          1000
POP_BASELINE_FILE      /home/transims/allstr-run/output/allstr.basepop
POP_LOCATED_FILE       /home/transims/allstr-run/output/allstr.locpop
POP_STARTING_VEHICLE_ID 100000
POP_STARTING_HH_ID     1
POP_STARTING_PERSON_ID 101


##################### ACTIVITY GENERATOR PARAMETERS #####################

ACT_FULL_OUTPUT           /home/transims/allstr-run/output/allstr.activities
ACT_PARTIAL_OUTPUT        /home/transims/allstr-run/output/allstr.partact
ACT_FEEDBACK_FILE         /home/transims/allstr-run/output/allstr.actfeed
ACT_WORK_LOC_ALPHA        1
ACT_WORK_LOC_BETA         1
ACT_WORK_LOC_GAMMA        1
ACT_TIME_ALPHA            1
ACT_TIME_BETA             1
ACT_MODE_ALPHA            1
ACT_MODE_BETA             1
ACT_WORK_LOCATION_OPTION 1
ACT_MODE_CHOICE_OPTION    4
ACT_HOME_HEADER           HOME
ACT_WORK_HEADER           WORK
ACT_ACCESS_HEADER         ACCESS


##################### OUTPUT PARAMETERS #####################
```

```
OUT_DIRECTORY              /home/transims/allstr-run/output

OUT_SNAPSHOT_NAME_1        allstr.snapshot
OUT_SNAPSHOT_BEGIN_TIME_1  0
OUT_SNAPSHOT_END_TIME_1    86400
OUT_SNAPSHOT_TIME_STEP_1   1
OUT_SNAPSHOT_EASTING_MIN_1  1
OUT_SNAPSHOT_EASTING_MAX_1  1000000
OUT_SNAPSHOT_NORTHING_MIN_1 1
OUT_SNAPSHOT_NORTHING_MAX_1 1000000
OUT_SNAPSHOT_NODES_1       /home/transims/allstr-run/data/allstr.nodes
OUT_SNAPSHOT_LINKS_1       /home/transims/allstr-run/data/allstr.links
OUT_SNAPSHOT_SUPPRESS_1
OUT_SNAPSHOT_FILTER_1

OUT_EVENT_NAME_1           allstr.event
OUT_EVENT_BEGIN_TIME_1     0
OUT_EVENT_END_TIME_1       86400
OUT_EVENT_TIME_STEP_1      1
OUT_EVENT_EASTING_MIN_1    1
OUT_EVENT_EASTING_MAX_1    1000000
OUT_EVENT_NORTHING_MIN_1   1
OUT_EVENT_NORTHING_MAX_1   1000000
OUT_EVENT_NODES_1          /home/transims/allstr-run/data/allstr.nodes
OUT_EVENT_LINKS_1          /home/transims/allstr-run/data/allstr.links
OUT_EVENT_SUPPRESS_1
OUT_EVENT_FILTER_1

OUT_SUMMARY_NAME_1         allstr.summary
OUT_SUMMARY_BEGIN_TIME_1   0
OUT_SUMMARY_END_TIME_1     86400
OUT_SUMMARY_TIME_STEP_1    900
OUT_SUMMARY_SAMPLE_TIME_1  60
OUT_SUMMARY_BOX_LENGTH_1   150
OUT_SUMMARY_EASTING_MIN_1  1
OUT_SUMMARY_EASTING_MAX_1  1000000
OUT_SUMMARY_NORTHING_MIN_1 1
OUT_SUMMARY_NORTHING_MAX_1 1000000
OUT_SUMMARY_NODES_1        /home/transims/allstr-run/data/allstr.nodes
OUT_SUMMARY_LINKS_1        /home/transims/allstr-run/data/allstr.links
OUT_SUMMARY_SUPPRESS_1
OUT_SUMMARY_FILTER_1

#################### SIMULATION PARAMETERS ################

# see IO/log.h for possible levels
CA_SLAVE_MESSAGE_LEVEL     0
CA_MASTER_MESSAGE_LEVEL    0

# name of executable (used by Msim.pl)
CA_BIN CA

# the max number of occupants of a bus
# int > 1
CA_BUS_CAPACITY   50

# the number of cells a bus occupies in a jam
# float > 0.0
CA_BUS_LENGTH     2.0

# the acceleration of a car, bus, etc.
# (in cells per timestep per timestep)
# float > 0.0
CA_MAXIMUM_ACCELERATION        0.4
CA_BUS_MAXIMUM_ACCELERATION    0.1

# the maximum speed of a car, bus, etc.
# (in cells per timestep)
# float > 0.0
CA_MAXIMUM_SPEED      4.5
```

```
CA_BUS_MAXIMUM_SPEED     2.5

# If nonzero, no attempt will be made to read in transit vehicles
# and transit passengers will not be simulated.
# int(?)
CA_NO_TRANSIT         1

# Some time after a vehicle becomes off plan, it will exit the simulation.
# the probability that a vehicle with speed >= 1 will decelerate by 1
# (also an increment added to the speed limit on a link)
# in the discrete version (not compiled with -DCONTINUOUS)
# float > 0 and < 1
CA_DECELERATION_PROBABILITY   0.2

# use to compute the number of cells that must be vacant in an acceptable gap
# (acceptable gap is speed of oncoming vehicle * Velocity Factor)
# float (> 1.0 ? )
CA_GAP_VELOCITY_FACTOR        3.0

# Probability of proceeding when interfering gap is not acceptable
# in cases of links with competing stop/yield signs
# float > 0 and < 1
CA_IGNORE_GAP_PROBABILITY        0.66

# The number of vehicles which can be buffered in each
# of an intersection's queues (One queue for each lane of each incoming link)
# int > 1
CA_INTERSECTION_CAPACITY     10

# Vehicles take at least this many timesteps to traverse an intersection
# int >= 0
CA_INTERSECTION_WAIT_TIME      1

# Can't change lanes if random variable drawn on each timestep for each vehicle
# is less than this
# float > 0 and < 1
CA_LANE_CHANGE_PROBABILITY      0.99

# number of cells ahead to look for deciding which lane is best upon entering a link
# int >= 0
CA_LOOK_AHEAD_CELLS        35

# If vehicle has not moved for this many timesteps,
# it becomes off-plan and chooses a different destination link, if possible.
# int >= 0
CA_MAX_WAITING_SECONDS        600

# The exit time is the minimum of the expected arrival time at the destination
# and the current time + OFF_PLAN_EXIT_TIME
# int >= 0
CA_OFF_PLAN_EXIT_TIME    1

# Determines, in a complicated way, whether lane changes for the
# sake of following a plan need to be considered
# int >= 0
CA_PLAN_FOLLOWING_CELLS    70

# specify start time for simulation
# int
CA_SIM_START_HOUR  0
CA_SIM_START_MINUTE  0
CA_SIM_START_SECOND  0

# number of timesteps to simulate
# int >= 0
CA_SIM_STEPS  3600

# send map of locations of all accessories to all slaves
CA_BROADCAST_ACC_CPN_MAP        0

# migrate travelers by broadcasting them
```

```
CA_BROADCAST_TRAVELERS          1

# number of time-steps to be executed before slaves synchronize with master
CA_SEQUENCE_LENGTH       1

# Initialize the random seed
# seed48 is called with a pointer to the first element of an array
# of these 3 unsigned shorts
# unsigned short
CA_RANDOM_SEED1  1
CA_RANDOM_SEED2  2
CA_RANDOM_SEED3  3

# Use the cached binary representation of the network database
# in the file specified by CA_NETWORK_FILE
# int
CA_USE_NETWORK_CACHE  0
# string
# CA_NETWORK_FILE

# The following delays model just the time it takes to walk up the steps or
# through the doors or whatever. They have nothing to do with the
# time spent waiting in the queue.

# The mean number of seconds it takes a traveler to board a transit vehicle.
# float >= 0.0
CA_ENTER_TRANSIT_DELAY   1.6

# The mean number of seconds it takes to disembark.
# float >= 0.0
CA_EXIT_TRANSIT_DELAY  1.8

# The number of seconds after a vehicle reaches the stop before
# passengers can start boarding
CA_TRANSIT_INITIAL_WAIT  5

# Name of a file containing TRANSIMS format vehicle information
# (locations, type, etc.)
CA_VEHICLE_FILE   /home/transims/allstr-run/output/allstr.vehicles

CA_USE_PARTITIONED_ROUTE_FILES  0

CA_LATE_BOUNDARY_RECEPTION      1
CA_PARALLEL_LOG                 0

CA_PARALLEL_IO_TEST_MODE        0
CA_PARALLEL_IO_TEST_INTERVAL    30

CA_OUTPUT_BUFFER_COUNT          32

CA_RTM_SAMPLE_INTERVAL          0


#################### TRANSIT PARAMETERS ####################

# Name of a file containing TRANSIMS format transit route information
# (list of stops for each route)
# string
TRANSIT_ROUTE_FILE /home/transims/allstr-run/data/allstr.routes

# Name of a file containing TRANSIMS format transit schedule information
# (list of arrival time for each vehicle at each stop)
# string
TRANSIT_SCHEDULE_FILE   /home/transims/allstr-run/data/allstr.schedules

#################### PLAN PARAMETERS ####################

# Name of a file containing TRANSIMS format legs
# string
PLAN_FILE   /home/transims/allstr-run/output/allstr.plans
```

```
##################### ROUTER PARAMETERS #####################

ROUTER_OUTPUT_PLAN_FILE /home/transims/allstr-run/output/allstr.plans
ROUTER_ACTIVITY_FILE    /home/transims/allstr-run/output/allstr.activities
ROUTER_VEHICLE_FILE     /home/transims/allstr-run/output/allstr.vehicles
ROUTER_MODE_MAP_FILE    /home/transims/allstr-run/data/allstr.modes

ROUTER_MAXNFASIZE         5
ROUTER_MAX_DEGREE         15
ROUTER_INTERNAL_PLAN_SIZE 400
ROUTER_VERBOSE   2

# If length < corr_thresh * dist, adjust the length
# float
ROUTER_CORR  0.0

# ??
# float
ROUTER_OVERDO  3.0

# Backdating time of travel information ??
# int
ROUTER_ZERO_BACKD  0

##################### LOGGING PARAMETERS #####################

LOG_LOG_CONFIG         0
LOG_LOAD_NETWORK       1
LOG_PARTITIONING       1
LOG_DISTRIBUTION       1
LOG_RUNTIMEMONITOR     0
LOG_CONTROL            0
LOG_TIMING             1
LOG_BOUNDARIES         0
LOG_ROUTING            1
LOG_ROUTING_DETAIL     1
LOG_TIMESTEP           1
LOG_TIMESTEP_DETAIL    1
LOG_PARALLEL           0
LOG_VEHICLES           1
LOG_MIGRATION          1
LOG_MIGRATION_DETAIL   1
LOG_TRANSIT            1
LOG_EMISSIONS          1
LOG_IO_DETAIL          0

##################### VISUALIZER PARAMETERS #####################

# int, will be single buffered if non-zero
VIS_SINGLE_BUFFERED  0

# Name of a file containing batch commands (unused)
# string
VIS_BATCH_FILE

# The length of a box in meters
# float
VIS_BOX_LENGTH         150.0

##################### PARTITIONING PARAMETERS #####################

PAR_PVM_ROOT                   /sw/Cvol/pvm3
PAR_PVM_ARCH                   SUN4SOL2
PAR_PVM_WAIT_FOR_DEAMON        20

PAR_MPI_ROOT                   /sw/Cvol/mpich
PAR_MPI_ARCH                   solaris
PAR_MPI_DEVICE                 ch_p4

PAR_MIN_CELLS_TO_SPLIT         10
PAR_SLAVES                     2
```

```
# if 1, use orthogonal bisection to distribute the network
# otherwise, use the METIS graph partitioning library
# int
PAR_USE_METIS_PARTITION          1
PAR_USE_OB_PARTITION             0

PAR_PARTITION_FILE               /tmp/partition
PAR_SAVE_PARTITION               0

# if 0 use (number of lanes) for edge weight, (length * number of lanes) for edge penalty
#       and 0 for node weights in the partitioning algorithm
# otherwise, use the file named in RTM_FEEDBACK_FILE and RTM_PENALTY_FACTOR.
# int
PAR_USE_RTM_FEEDBACK             0

# Filename for edge and node weights for partitioning
# File format is lines of the form:
# 0 Id Weight
# 1 Id Weight Penalty
# The first line sets a node weight
# the second line sets an edge weight: if penalty is -1, use current value *
RTM_PENALTY_FACTOR
#                                      otherwise use Penalty * RTM_PENALTY_FACTOR
# string
PAR_RTM_FEEDBACK_FILE            /tmp/rtm

# See above for RTM_FEEDBACK_FILE
# float > 0.0
PAR_RTM_PENALTY_FACTOR           100.0

PAR_REPORT_OUTGOING_LINK_TIME_ONLY    1

#################### SELECTOR PARAMETERS ##################

# Only travelers whose (actual - expected) / expected
# is greater than this will be affected by any operations
# float > 0
SEL_FRUSTRATION_THRESH 1.5

# Fraction of travelers to select for
# just rerouting
# reassigning activities
# choosing a new mode preference
# changing the time of activities
# float, >= 0 and <= 1
SEL_REROUTE_FRAC 0.1
SEL_REASSIGN_FRAC 0.1
SEL_REMODE_FRAC 0.1
SEL_RETIME_FRAC 0.1

# Name of files in which to place traveler ids
# selected for each of the possible changes
# string
SEL_REROUTE_FILE
SEL_REMODE_FILE
SEL_RETIME_FILE
SEL_REASSIGN_FILE

# ==============================================================================
# Local Variables:
# tab-width:4
# End:
# ==============================================================================
```

2. VOLUME ONE (*TECHNICAL OVERVIEW*)

VOLUME TWO (*NETWORKS AND VEHICLES*)

2.1 Network File Configuration File Keys

Configuration File Key	Description
NET_ACTIVITY_LOCATION_TABLE	Activity location table name.
NET_ACTUATED_ALGORITHM_B_BETA	Velocity factor for actuated algorithm B. Default = 1.0 meters/sec
NET_ACTUATED_ALGORITHM_B_DENSITY_CONST	Density factor for actuated algorithm B. Default = 0.0/meter
NET_ACTUATED_ALGORITHM_B_FLOW_CONST	Flow factor for actuated algorithm B. Default = 0.1/sec
NET_BARRIER_TABLE	Barrier table name.
NET_DETECTOR_PRESENCE_SAMPLE_TIME	Presence detector sampling frequency. Default = 1 sec
NET_DETECTOR_RETENTION_TIME	Retention time for detections. Detections are retained until all interested signals have examined them once or for NET_DETECTOR_RETENTION_TIME, whichever is longer. Default = 0 sec (i.e., cleared after used once)
NET_DETECTOR_TABLE	Detector table name.
NET_DIRECTORY	Directory where the network files reside.
NET_LANE_CONNECTIVITY_TABLE	Lane connectivity table name.
NET_LANE_USE_TABLE	Lane use table name.
NET_LANE_WIDTH	Default lane width (meters).
NET_LINK_MEDIAN_HALFWIDTH	Default half-width (meters) of the median between lanes on a link. • To correspond with the current release of the Output Visualizer, this parameter must be assigned a value of 0.5 * NET_LANE_WIDTH.
NET_LINK_TABLE	Link table name.
NET_NODE_TABLE	Node table name.
NET_PARKING_TABLE	Parking table name.
NET_PHASING_PLAN_TABLE	Phasing plan table name.
NET_POCKET_LANE_TABLE	Pocket lane table name.
NET_PROCESS_LINK_TABLE	Process link table name.
NET_SIGNAL_COORDINATOR_TABLE	Signal coordinator table name.
NET_SIGNALIZED_NODE_TABLE	Signalized node table name.
NET_SPEED_TABLE	Speed table name.
NET_STUDY_AREA_LINKS_TABLE	Study area links table name.
NET_TIMING_PLAN_TABLE	Timing plan table name.
NET_TRANSIT_STOP_TABLE	Transit stop table name.
NET_TURN_PROHIBITION_TABLE	Turn prohibition table name.
NET_UNSIGNALIZED_NODE_TABLE	Unsignalized node table name.

☞ *This feature is not implemented in Version 1.1.*

Detector defect keys.

Configuration File Key	Description
NET_DETECTOR_ACCELERATION_NOISE	Standard deviation of random error in detection acceleration (meters/second/second).
NET_DETECTOR_ACCELERATION_OFFSET	Systematic error in detection acceleration (meters/second/second).
NET_DETECTOR_FAILURE_TIME_MEAN	Mean time (seconds) between detector catastrophic failures. A value of 0 indicates no failures.
NET_DETECTOR_FALSE_ALARM_PROBABILITY	Probability of counting the same detection twice.
NET_DETECTOR_FALSE_ALARM_TIME_MEAN	Mean time (seconds) between spontaneous false alarms (i.e., recording a detection when no vehicle was there). A value of 0 indicates no spontaneous false alarms.
NET_DETECTOR_INITIAL_FAILURE_PROBABILITY	Probability detector is broken at beginning of simulation.
NET_DETECTOR_MISS_ACCELERATION_PROBABILITY	Probability of missing the acceleration component of a detection.
NET_DETECTOR_MISS_POSITION_PROBABILITY	Probability of missing the position component of a detection.
NET_DETECTOR_MISS_PROBABILITY	Probability of detector missing a detection.
NET_DETECTOR_MISS_VELOCITY_PROBABILITY	Probability of missing the velocity component of a detection.
NET_DETECTOR_POSITION_NOISE	Standard deviation of random error in detection position (meters).
NET_DETECTOR_POSITION_OFFSET	Systematic error in detection position (meters).
NET_DETECTOR_VELOCITY_NOISE	Standard deviation of random error in detection velocity (meters/second).
NET_DETECTOR_VELOCITY_OFFSET	Systematic error in detection velocity (meters/second).
NET-DETECTOR_REPAIR_TIME_MAX	Maximum time (seconds) until failed detector is repaired. A value of 0 indicates detector is immediately repaired. A value of -1 indicates no repair.

2.2 Transit File Configuration File Keys

Configuration File Key	Description
TRANSIT_ROUTE_FILE	The name of a transit route file whose format is described. Used as input by the Traffic Microsimulator and the Route Planner.
TRANSIT_SCHEDULE_FILE	The name of a transit schedule file whose format is described above. Used as input by the Route Planner.
TRANSIT_ZONE_FILE	The name of a transit zone file whose format is described above. Currently unused.

2.3 Vehicle File Configuration File Key

Configuration File Key	Description
VEHICLE_FILE	The path of the vehicle file.

2.4 Vehicle Prototype File Configuration File Keys

Configuration File Key	Description
VEHICLE_PROTOTYPE_FILE	The path of the vehicle prototype file.

3. VOLUME THREE (*MODULES*), CHAPTER TWO (*POPULATION SYNTHESIZER*)

3.1 Synthetic Population Configuration File Keys

Configuration File Key	Description
SYNPOP_BASE_DIRECTORY	*$TRANSIMS_HOME*
SYNPOP_BASE_PREFIX	The file name prefix for the base-synthesized population output files. No base-year output will be generated if this key is blank.
SYNPOP_FORECAST_PREFIX	The file name prefix for the forecast-synthesized population output files. No forecast output will be generated if this key is blank.
SYNPOP_HOUSEHOLD_DEMOGRAPHICS	The list of household PUMS fields to be placed in the population output files (separated by semicolons). See the file *$TRANSIMS_HOME/data/synpop/docs/pumsusdd.txt* for a complete of the possible fields.
SYNPOP_KEEP_TEMP_FILES	Whether to retain the working files after the population synthesis is complete (1 = yes, 0 = no).
SYNPOP_MABLE_FILE	The directory in which the MABLE output file is stored.
SYNPOP_MARGINALS_FILE	The location of the Forecast Marginals file.
SYNPOP_PERSON_DEMOGRAPHICS	The list of person PUMS fields to be placed in the population output files (separated by semicolons). See the file *$TRANSIMS_HOME/data/synpop/docs/pumsusdd.txt* for a complete list of the possible fields.
SYNPOP_PUMAS	The list of five-digit PUMA numbers to be processed (separated by semicolons).
SYNPOP_PUMS_DIRECTORY	The directory in which the PUMS data are stored.
SYNPOP_RANDOM_SEED	The random number seed (integer).
SYNPOP_STATE	The two-letter abbreviation (lowercase) of the state of interest.
SYNPOP_STF_DATA_DIRECTORY	The directory in which the STF3A dBase files are located.
SYNPOP_STF_INFO_DIRECTORY	*%TRANSIMS_HOME/data/synpop/Parep2/stf*
SYNPOP_TEMP_DIRECTORY	The directory in which temporary working files will be placed.

3.2 BlockGroupLoc Configuration File Keys

Configuration File Key	Description
ACT_BLOCKGROUP_HEADER	The user data column header in the network activity location file used to specify the block group. Default = BG
ACT_HOME_HEADER	The user data column header in the network activity location file used to specify single family home locations. Default = HOME
ACT_MULTI_FAMILY_HEADER	The user data column header in the network activity location file used to specify multifamily home locations. If not specified, multifamily user data from the activity location file is ignored.
ACT_TRACT_HEADER	The user data column header in the network activity location file used to specify the census tract. Default = TRACT
NET_ACTIVITY_LOCATION_TABLE*	The network activity location table name.
NET_DIRECTORY*	The directory where the network files reside.
NET_LINK_TABLE*	The network link table name.
NET_NODE_TABLE*	The network node table name.
POP_BASELINE_FILE*	The name of the file containing the baseline population.
POP_LOCATED_FILE*	The name of the file where the located population will be written.
POP_NEAREST_BG_FILE	The name of the Tract/Block Group Substitution file that contains information about the nearest tract/block group for block groups that have no activity locations on the transportation network.
POP_STARTING_HH_ID	The number from which the generated households will be sequentially numbered. Default = 1
POP_STARTING_PERSON_ID	The number from which the generated persons will be sequentially numbered. Default = 101

* Configuration file keys required for *BlockGroupLoc*. All others are optional and will use default values.

4. VOLUME THREE (*MODULES*), CHAPTER THREE (*ACTIVITY GENERATOR*)

4.1 Activity Generator Configuration File Keys

Configuration File Key	Description
ACT_ACCESS_HEADER	The user data column header in the network activity location file used to specify access to transit.
ACT_ACTIVITY_TYPE	Used to specify the activity types used by the Activity Generator. The base key must be followed with _n where n is an integer to indicate the nth specification of the activity type (non-negative integer).
ACT_BICYCLE_MODE	The number of the bicycle mode (*wyw*) (integer).
ACT_BLOCKGROUP_HEADER	The user data column header in the network activity location file used to specify block group.
ACT_CAR_MODE	The number of the car mode (*wcw*) (integer).
ACT_CARPOOL_ACTIVITY_TYPE	The number of the car pool activity type (non-negative integer).
ACT_DECISION_TREE_FILE	The name of the file containing regression tree for the Activity Generator.
ACT_DEFAULT_CAR_SPEED	The default speed for automobiles in meters/second (floating point number). Default = 37.5
ACT_DEFAULT_INTRAZONE_TRAVEL_TIME	The default travel time within a zone in seconds (integer). Default = 60
ACT_DEFAULT_TRANSIT_MODE	The number of the default transit mode (*wtw*) (integer).
ACT_DEFAULT_TRANSIT_SPEED	The default transit speed in meters/second (floating point number). Default = 30.5
ACT_END_OF_DAY_TIME_RANGE	The time range in hours for lower and upper bounds of start and end times for the end-of-day activity (positive floating number). Default = 0.75
ACT_HOME_ACTIVITY_TYPE	The number of the home activity type (non-negative integer).
ACT_HOME_DURING_DAY_TIME_RANGE	The time range in hours for lower and upper bounds of start and end times for non-work activities originating at home (positive floating point number). Default = 0.75
ACT_HOME_HEADER	The user data column header in the network activity location file used to specify single family home locations.

Configuration File Key	Description
`ACT_INITIAL_HOME_TIME_RANGE`	The time range in hours for lower and upper bounds of start and end times for the initial at-home activity (positive floating point number). Default = 0.75
`ACT_LOCATION_HEADER`	Used to specify the header for the activity type for activity locations in the network activity location table. The headers must correspond to the activity types defined with the `ACT_ACTIVITY_TYPE_N` keys. The base key must be followed with _n where n is an integer to indicate the nth specification of the header.
`ACT_MAGIC_MOVE_MODE`	The number of the magic move mode (wkw) (integer).
`ACT_MAX_END_TIME`	The maximum end time for an activity in hours past midnight on the starting day (positive floating point number).
`ACT_MODE_WEIGHT_FILE`	The name of the file containing mode coefficients for the activity types. This must contain a coefficient for every mode and activity type.
`ACT_MULTI_FAMILY_HEADER`	The user data column header in the network activity location file used to specify multifamily home locations.
`ACT_OUT_OF_HOME_TIME_RANGE`	The time range in hours for lower and upper bounds of start and end times for non-work activities that do not originate at home (positive floating point number). Default = 0.75
`ACT_PERSON_DEMOG_AGE_HEADER`	The name of the age demographic header for the persons in the population used by the Activity Generator.
`ACT_PERSON_DEMOG_GENDER_HEADER`	The name of the gender demographic header for the persons in the population used by the Activity Generator.
`ACT_PERSON_DEMOG_RELATION_HEADER`	The name of the relationship demographic header for the persons in the population used by the Activity Generator.
`ACT_PERSON_DEMOG_WORKER_HEADER`	The name of the worker demographic header for the persons in the population used by the Activity Generator.
`ACT_POPULATION_FILE`	The name of the file containing a located synthetic population with household and person demographics that exactly match the variables in the Activity Generator regression tree. This file is output from the population converter program.
`ACT_RANDOM_SEED`	The random number seed used by activity generators.

Configuration File Key	Description
`ACT_REQUIRED_HH_DEMOG`	Used to specify the required household demographics in the synthetic population used by the Activity Generator. The base key must be followed with _n where n is an integer to indicate the nth specification of required demographics. The demographics must exactly match and be ordered the same (1 - n) as the demographic variables in the Activity Generator's regression tree.
`ACT_SCHOOL_ACTIVITY_TYPE`	The number of the school activity type (non-negative integer).
`ACT_SHARED_RIDE_DISTANCE_RANGE`	The distance range in meters for matching activity locations for shared rides. Default = 2000
`ACT_SHARED_RIDE_TIME_RANGE_MAX`	The maximum time range in minutes for matching activities for shared rides. Default = 60
`ACT_SHARED_RIDE_TIME_RANGE_MIN`	The minimum time range in minutes for matching activities for shared rides. Default = 15
`ACT_SURVEY_ACTIVITY_FILE`	The name of the file containing activity patterns for the survey households.
`ACT_SURVEY_HOUSEHOLD_FILE`	The name of the file containing the survey household population and demographics.
`ACT_SURVEY_WEIGHTS_FILE`	The name of the file containing the relative weights of the survey households.
`ACT_TAZ_HEADER`	The user data column header in the network activity location file used to specify traffic analysis zone.
`ACT_TRACT_HEADER`	The user data column header in the network activity location file used to specify census tract.
`ACT_TRAVEL_TIMES_FILE`	The name of the file containing travel time information between zones.
`ACT_TRIP_TABLE_OUTPUT`	The name of the file that will be output from the Trip Table Activity Generator.
`ACT_TRIP_TABLE_VEHICLE_FILE`	The name of the vehicle file that will be output from the Trip Table Activity Generator.
`ACT_TRIPTABLE_FILE`	The name of the file containing the trip table matrix.
`ACT_TRIPTABLE_STARTING_HH_ID`	The starting household ID for households generated from the Trip Table Activity Generator.
`ACT_TRIPTABLE_STARTING_PERSON_ID`	The starting person ID for travelers generated from the Trip Table Activity Generator.
`ACT_TRIPTABLE_STARTING_VEHICLE_ID`	The starting vehicle ID for vehicles generated from the Trip Table Activity Generator.
`ACT_TRIPTIME_FILE`	The name of the file containing the time of day trip table data.

Configuration File Key	Description
ACT_WALKING_MODE	The number of the walking mode (*w*) (integer).
ACT_WORK_ACTIVITY_TYPE	The number of the work activity type (non-negative integer).
ACT_WORK_HEADER	The user data column header in the network activity location file used to specify work locations.
ACT_WORK_TIME_RANGE	The time range in hours for lower and upper bounds of start and end times for work activities (positive floating point number). Default = 0.25
ACT_ZONE_HEADER	Used to specify the header for the zone attractors, which must match the activity types (ACT_ACTIVITY_TYPE_N). The base key must be followed with _n where n is an integer to indicate the nth specification of the header.
ACT_ZONE_INFO_FILE	The name of the file containing zone attractor data by activity type for the Activity Generator.
ACTIVITY_FILE	
NET_ACTIVITY_LOCATION_TABLE	The network activity location table name.
NET_DIRECTORY	The directory where the network files reside.
NET_LINK_TABLE	The network link table name.
NET_NODE_TABLE	The network node table name.
ROUTER_BIKING_SPEED	The approximate speed in meters/sec for bicycles.
ROUTER_WALKING_SPEED	The approximate speed in meters/sec for walking trips.
VEHICLE_FILE	The name of the TRANSIMS vehicle file for the population.

4.2 Activity Regenerator Configuration File Keys

Configuration File Key	Description
ACT_FEEDBACK_FILE	The file containing a list of travelers and associated commands for activity regeneration.
ACT_PARTIAL_OUTPUT	The name of the file that will be output from partial regeneration of activities.

4.3 Population Converter Configuration File Keys

Configuration File Key	Description
`ACT_HHDENSITY_HEADER`	The column header of the household density values in the network activity location tables.
`ACT_POPULATION_FILE`	The name of the file containing a located synthetic population with household and person demographics that exactly match the variables in the Activity Generator regression tree. This file is output from the Population Converter program.
`POP_LOCATED_FILE`	The name of the file containing the located population.

5. VOLUME THREE (*MODULES*), CHAPTER FOUR (*ROUTE PLANNER*)

5.1 Files Configuration Values

Configuration File Key	Description
ACTIVITY_FILE	Path to a TRANSIMS activity file. **Required**.
LOG_ROUTING	Turn on Route Planner logging. This produces information about the status and progress of the Route Planner. Default = 0
LOG_ROUTING_DETAIL	Turn on detailed Route Planner logging. Produces many messages. Default = 0.
MODE_MAP_FILE	Path to a mode file. **Required**.
PLAN_FILE	Name of the file where plans should be written. (Overwrites an existing file.) **Required**.
ROUTER_BIKING_SPEED	Speed to use when computing delays for walk links traversed by bicycle (meters/second). Default = 4.0
ROUTER_CORR	Floating-point number, between 0 and 1. The Route Planner will change the reported length of a link to be equal to its Euclidean length whenever the ratio of the two is less than this value. This is done in order to avoid problems when the Sedgewick-Vitter heuristic is used. Default = 0.0
ROUTER_DELAY_NOISE	Percentage of noise to add to link delays. Default = 0
ROUTER_FILTER_EXCLUDE_MODE	Plan modes not include in plan file. Default it to include no modes. Only one of INCLUDE_MODE and EXCLUDE_MODE may be specified.
ROUTER_FILTER_EXCLUDE_VEHICLE	Plan vehicle types not to include in plan file. Default is to include no vehicle types. Only one of INCLUDE_VEHICLE and EXCLUDE_VEHICLE can be specified.
ROUTER_FILTER_INCLUDE_MODE	Plan modes to include in plan file. Default is to include all modes.
ROUTER_FILTER_INCLUDE_VEHICLE	Plan vehicle types to include in plan file. Default is to include all vehicle types.
ROUTER_GET_OFF_TRANSIT_DELAY	Delay encountered when exiting a transit vehicle. Default = 4 seconds
ROUTER_GET_ON_TRANSIT_DELAY	Delay encountered when boarding a transit vehicle. Default = 3 seconds
ROUTER_HOUSEHOLD_FILE	Path to a file containing a list of integer IDs for householders to be planned.

Configuration File Key	Description
ROUTER_INTERNAL_PLAN_SIZE	Positive integer. Should be enough to accommodate the length (in number of nodes) of the shortest path between any two nodes in the network (and may need to be quite large when multimodal plans are used). Default = 400
ROUTER_LINK_DELAY_FILE	Feedback file from which to read link delays. If the key is not present or the file does not exist, the free speed delays are used.
ROUTER_MESSAGE_LEVEL	Level of warning messages to produce: -2 (ERROR) -1 (PRINT) 0 (SEVERE WARNING) 1 (WARNING). Produces information about possible anomalies the Route Planner has encountered. Default = 1
ROUTER_NUMBER_THREADS	Positive integer. Number of worker threads to be used. A value of 0 means no threads will be used. Default = 0
ROUTER_OVERDO	Non-negative floating-point number. If set to 0, no adjustment is made to the distance estimates. If positive, the search for the shortest path to the origin will be biased in the direction of a straight line to the destination. This will produce non-optimal paths. The paths will still be reasonable, but the heuristic may cause relatively small congestion on links to be ignored, and this can break the iterative relaxation mechanism. Default = 0.0
ROUTER_PROBLEM_FILE	Path name to a file in which activities with anomalies identified by the Route Planner are written. **Required.**
ROUTER_SEED	Seed to use for random number generator. If key is set to 0, use process ID. Default = 0
ROUTER_WALKING_SPEED	Speed to use when computing delays for walk links (meters/second). Default = 1.0
ROUTER_ZERO_BACKD	Integer, 0 or 1. Default = 0
TRANSIT_ROUTE_FILE	File containing route of transit vehicles.
TRANSIT_SCHEDULE_FILE	File containing schedules of transit vehicles.
VEHICLE_FILE	Path to a TRANSIMS vehicle file. **Required**.

5.2 Plan File Configuration File Keys

Configuration File Key	Description
CA_USE_PARTITIONED_ROUTE_FILES	If this key is set, the simulation expects to find separate indexes into a plan file for each slave. These can be produced using a partition file and the *DistributePlans* utility.
PLAN_FILE	Location of a file containing plans, or the base name of an index that points to plan files. Used by the Route Planner for output and the Traffic Microsimulator and Selector/Iteration Database for input.

6. VOLUME THREE (*MODULES*), CHAPTER FIVE (*TRAFFIC MICROSIMULATOR*)

6.1 Configuration Parameters

Configuration File Key	Description
CA_BROADCAST_ACC_CPN_MAP CA_BROADCAST_TRAVELERS	If `Broadcast Travelers` is set, migrating travelers are broadcast to every CPU. Because only one CPU will eventually make use of the traveler, this is inefficient. If `Broadcast Acc CPN Map` is set, each CPU knows which CPU is associated with every accessory, so traveler migration messages can be targeted to only the single CPU that needs them. If the CPN Map is not broadcast, travelers must be broadcast.
CA_DECELERATION_PROBABILITY	To enhance traffic variation, each automobile driver randomly decides whether to decelerate for no apparent reason at each timestep. The probability of decelerating is a value in the range 0.0 to 1.0. Default = 0.2
CA_ENTER_TRANSIT_DELAY CA_EXIT_TRANSIT_DELAY	These keys specify the mean number of timesteps it takes for a single traveler to enter or exit a transit vehicle.
CA_GAP_VELOCITY_FACTOR	At unsignalized intersections and during protected movements at signalized intersections, drivers wait for a suitable gap in cross traffic before proceeding through the intersection. The number of empty cells in a suitable gap is based on the speed of the cross traffic and the gap velocity factor. The suitable gap is calculated for each lane of the cross traffic. `Gap = Speed of Oncoming Vehicle * Gap Velocity Factor` The gap velocity factor must be greater than 0.0. The default value is 3.0. Note that vehicles with a speed of 0 result in a suitable gap size of 0, which improves traffic flow in congested conditions.
CA_IGNORE_GAP_PROBABILITY	Drivers at unsignalized intersections wait for a suitable gap in cross traffic before proceeding through the intersection. Allowing each driver to ignore the gap constraint with some probability prevents the deadlock that would take place when vehicles are waiting for each other at multiway stop/yield signs. The probability that the drivers at multiway stop/yield signs will ignore the constraint is a value in the range of 0.0 to 1.0. Default = 0.66
CA_INTERSECTION_CAPACITY	`Intersection Capacity` determines the number of vehicles that can be held by each intersection's buffers.
CA_INTERSECTION_WAIT_TIME	`Intersection Wait Time` specifies the number of seconds that a vehicle requires to pass through a signalized intersection. A vehicle resides in an intersection-queued buffer for this amount of time and is then placed on the next link if the first cell on that link is unoccupied. It will remain in the intersection for a longer time if entry to the next link is blocked by another vehicle. Valid values are positive. Default = 1 second

Configuration File Key	Description
CA_LANE_CHANGE_PROBABILITY	Variation in traffic is reduced by not allowing every driver who would change lanes based on vehicle speed and gaps in the traffic to do so at each timestep. This is done to prevent *lane hopping*. The probability that a driver will change lanes when speed and gaps permit is a value in the range of 0.0 to 1.0. Default = 0.99
CA_LATE_BOUNDARY_RECEPTION	If Late Boundary Reception is set, the simulation will try to overlap computation and communication.
CA_LOOK_AHEAD_CELLS	The preferred lane for a vehicle to be in as it approaches an intersection depends on the connectivity from the current link to the next link in the plan. In some situations, it is advantageous for the driver to look beyond the next link to subsequent links in the plan when deciding the preferred lane. Look Ahead Cells controls how far ahead the driver will look. A value of 0 indicates that the driver will not look beyond the next link. A positive value indicates that the driver will look at least one additional step beyond the next step in the plan. The number of additional links considered is determined by the lengths of the subsequent links, with link lengths being summed until the accumulated distance is greater than or equal to Look Ahead Cells. Valid values are positive or zero. Default = 35 cells
CA_MAX_WAITING_SECONDS	Max Waiting Seconds determines the number of seconds that a vehicle will try to enter an intersection. If the vehicle has not moved from the link into or through the intersection in Max Waiting Seconds, the vehicle abandons its plan and tries an alternative movement through the intersection (if one exists). Max Waiting Seconds must be > 0 and should be greater than the longest red phase of the traffic controls in the simulation. Default = 600 seconds
CA_NO_TRANSIT	If this flag is set, travelers whose plans originate or end at a transit stop are removed from the simulation. None of their remaining legs are used. (The transit driver plans do not fall into this category, thus transit vehicles can still be present in the simulation, but no passengers will use them.)
CA_OFF_PLAN_EXIT_TIME	Off Plan Exit Time specifies the number of seconds a vehicle is allowed to deviate from its plan before being removed from the simulation. This prevents off-plan vehicles from wandering on the transportation network. Valid values are positive. Default = 1 second
CA_PLAN_FOLLOWING_CELLS	Plan Following Cells specifies a count of the number of cells preceding the intersection within which a vehicle will make lane changes to get in an appropriate lane and thus transition to the next link in its plan. Beyond this distance, lane-changing decisions are based only on vehicle speed and gaps in the traffic. Within this distance, the lane required by the vehicle's plan is also taken into account. As the vehicle nears the intersection, the bias to be in the lane required to stay on plan is increased. Valid values are positive or zero. Default = 70 cells

Configuration File Key	Description
CA_RANDOM_SEED1 CA_RANDOM_SEED2 CA_RANDOM_SEED3	These three values are combined to initialize the random number generator. Note that the actual sequence of random numbers generated on a slave also depends on the number of slaves and the partitioning in general.
CA_SEQUENCE_LENGTH	The slaves are implicitly synchronized among themselves by the actions of passing boundaries and migrating vehicles. They are also explicitly synchronized by the master every Sequence Length timestep. It may be more efficient to allow the implicit synchronization to control the simulation.
CA_SIM_START_HOUR CA_SIM_START_MINUTE CA_SIM_START_SECOND	These values are combined to calculate the simulation's starting time. Plans whose estimated arrival time is before the start time are not executed.
CA_SIM_STEPS	The simulation executes Sim Steps timesteps before exiting.
CA_SLAVE_MESSAGE_LEVEL CA_MASTER_MESSAGE_LEVEL	Only warning messages whose severity is at least as high as Message Level will be written to the master or slave log file.
CA_SLAVE_PRINT_MASK CA_MASTER_PRINT_MASK	These variables control which logging messages to ignore. They are code set within the code based on the values of the LOG_ configuration file keys and should not be set directly.
CA_TRANSIT_INITIAL_WAIT	Transit Initial Wait specifies the number of timesteps a transit vehicle must be present at a transit stop before any passengers get on or off.
CA_USE_NETWORK_CACHE	If set, use a cached binary representation of the network. This representation would have been created by a prior run of the simulation.
CA_USE_PARTITIONED_ROUTE_FILES	It is more efficient for slaves to read only those plans that start in the part of the network for which they are responsible. If the partitioning to be used by the simulation is available (for example, from a prior run of the simulation), the *DistributePlans* utility will create a separate pair of indexes for each slave into one common plan file. If Use Partitioned Route Files is set, the slaves will look for these slave-specific indexes. If they do not exist, the simulation will fall back to using a single global pair of indexes.
CA_USE_ROMIO_FOR_OUTPUT	If Use Romio For Output is set, and the executable was compiled with the USE_ROMIO and USE_MPI flags defined, the parallel output system will use ROMIO files instead of Unix files.
PAR_HOST_COUNT	The number of distinct machines that make up the parallel machine environment.
PAR_HOST_I PAR_HOST_CPUS_I PAR_HOST_SPEED_I	These variables describe the parallel machine environment to the simulation. There should be one set of these three variables, with I replaced by an integer from 0 to the value of PAR_HOST_COUNT – 1, for each host. Host should be a string containing the name of the machine. Host CPUs should give the number of CPUs available for use on the machine. Host Speed should give the relative speeds of the different machines in arbitrary units. The sum of all the values of Host CPUs must be at least one larger than the number of slaves requested.

Configuration File Key	Description

`PAR_RTM_INPUT_FILE`
`RTM_FEEDBACK_FILE`
`RTM_SAMPLE_INTERVAL`
`PAR_RTM_PENALTY_FACTOR`
	The partitioning algorithms try to find the partition that spreads the computation associated with nodes and links evenly while simultaneously trying to minimize the communication costs associated with split links. The costs for each node and link can be estimated using run time costs from prior runs. These costs are sampled at the interval defined by RTM Sampling Interval and written out to the file named by RTM File. They are read in from the file found in the directory named by `OUTPUT_DIRECTORY`.

`PAR_SLAVES`	This key sets the number of slave processes to spawn. It must be smaller than the number of host CPUs available (to allow one process for the master).
`PLAN_FILE`	The plan file specifies the name of the file in which plans reside or a string to which *.tim.idx* and *.trv.idx* can be appended to find the time-sorted and traveler-id-sorted indexes into a plan file(s). The plans should include all travelers; for example, plans created by the Route Planner, transit driver plans, freight plans, etc. The name should be given as an absolute path name because the slave executables are not always run from the current working directory.
`VEHICLE_FILE`	The vehicle file specifies the name in which vehicles reside or a string to which *.veh.idx* can be appended to find the vehicle-id-sorted index into a vehicle file(s). The vehicle file must include all vehicles to be used in the simulation.
`VEHICLE_PROTOTYPE_FILE`	The vehicle prototype file must include information about every vehicle type used in the simulation.

6.2 Configuration File Keys for Snapshot Output

Configuration File Key	Description
OUT_SNAPSHOT_BEGIN_TIME_n	The first time (in seconds from the midnight before simulation start) at which to collect data.
OUT_SNAPSHOT_END_TIME_n	The last time (in seconds from the midnight before simulation start) at which to collect data.
OUT_SNAPSHOT_FILTER_n	The list of expressions (of the form FIELD OPERATOR VALUE, and separated by semicolons) for filtering records.
OUT_SNAPSHOT_LINKS_n	The path of the link.
OUT_SNAPSHOT_NAME_n	The file name for snapshot output.
OUT_SNAPSHOT_NODES_n	The path of the node specification.
OUT_SNAPSHOT_SUPPRESS_n	The list of fields (separated by semicolons) not to include in the output file.
OUT_SNAPSHOT_TIME_STEP_n	The frequency (in seconds) at which to report data (i.e., write it to disk).
OUT_SNAPSHOT_TYPE_n	The types of snapshot output to collect (separated by semicolons) permissible values are VEHICLE; INTERSECTION; SIGNAL.

6.3 Configuration File Keys for Event Output

Configuration File Key	Description
OUT_EVENT_BEGIN_TIME_n	The first time (in seconds from the midnight before simulation start) at which to collect data.
OUT_EVENT_END_TIME_n	The last time (in seconds from the midnight before simulation start) at which to collect data.
OUT_EVENT_FILTER_n	The list of expressions (of the form FIELDNAME OPERATOR VALUE and separated by semicolons) for filtering records.
OUT_EVENT_NAME_n	The file name for event output.
OUT_EVENT_SUPPRESS_n	The list of fields (separated by semicolons) not to include in the output file.
OUT_EVENT_TYPE_n	The types of event output to collect permissible value is TRAVELER.

6.4 Configuration File Keys for Summary Output

Configuration File Key	Description

Configuration File Key	Description
`OUT_SUMMARY_BEGIN_TIME_n`	The first time (in seconds from the midnight before simulation start) at which to collect data.
`OUT_SUMMARY_BOX_LENGTH_n`	The length of the boxes (in meters).
`OUT_SUMMARY_END_TIME_n`	The last time (in seconds from the midnight before simulation start) at which to collect data.
`OUT_SUMMARY_ENERGY_BINS_n`	The number of bins used to cover the range of the energy histogram.
`OUT_SUMMARY_ENERGY_MAX_n`	The maximum energy in the energy histogram.
`OUT_SUMMARY_ENERGY_SOAK_n`	The single value specifying the soak time for which to collect energy data. Permissible values are `SHORT,  MEDIUM`, or `LONG`. If key is not specified, all soak times are included in the energy output.
`OUT_SUMMARY_FILTER_n`	The list of expressions (of the form `FIELD OPERATOR VALUE` and separated by semicolons) for filtering records
`OUT_SUMMARY_LINKS_n`	The path of the link specification file.
`OUT_SUMMARY_NAME_n`	The file name for summary output.
`OUT_SUMMARY_SAMPLE_TIME_n`	The frequency (in seconds) at which to accumulate data.
`OUT_SUMMARY_SUPPRESS_n`	The list of fields (separated by semicolons) not to include in the output file.
`OUT_SUMMARY_TIME_STEP_n`	The frequency (in seconds) at which to report data (i.e., write it to disk).
`OUT_SUMMARY_TYPE_n`	The types of summary output to collect (separated by semicolons) permissible values are `DENSITY; TIME; VELOCITY; ENERGY`.
`OUT_SUMMARY_VEHICLE_TYPE_n`	The vehicle type and subtype (separated by colon) for which to collect velocity data. If subtype is zero or not specified, data for all subtypes of type will be included in the velocity output. If key is not specified, all vehicle types will be included in the velocity output.
`OUT_SUMMARY_VELOCITY_BINS_n`	The number of bins used to cover the range of the velocity histogram (in meters/second).
`OUT_SUMMARY_VELOCITY_MAX_n`	The maximum velocity in the velocity histogram (in meters/second).

6.5 Configuration File Keys for the CompareDensity and CompareVelocity Programs

Configuration File Key	Description
`OUT_SUMMARY_SPACE_COUNT_TOLERANCE_1`	The difference tolerated between snapshot and summary count data.
`OUT_SUMMARY_SPACE_SUM_TOLERANCE_1`	The difference tolerated between snapshot and summary sum data.
`OUT_SUMMARY_SPACE_SUMSQUARES_TOLERANCE_1`	The difference tolerated between snapshot and summary sum-of-squares data.

6.6 Default Output Configuration File Keys

Configuration File Key	Description
`OUT_BEGIN_TIME_DEFAULT`	The first time (in seconds from the midnight before simulation start) at which to collect data.
`OUT_EASTING_MAX_DEFAULT`	The maximum easting (in meters) for which to report data (currently unused).
`OUT_EASTING_MIN_DEFAULT`	The minimum easting (in meters) for which to report data (currently unused).
`OUT_END_TIME_DEFAULT`	The last time (in seconds from the midnight before simulation start) at which to collect data.
`OUT_EVENT_FILTER_DEFAULT`	The list of expressions (of the form `FIELD OPERATOR VALUE` and separated by semicolons) for filtering event records.
`OUT_EVENT_SUPPRESS_DEFAULT`	The list of fields (separated by semicolons) not to include in the event output file.
`OUT_LINKS_DEFAULT`	The path of the link specification file.
`OUT_NODES_DEFAULT`	The path of the node specification file.
`OUT_NORTHING_MAX_DEFAULTY`	The maximum northing (in meters) for which to report data (currently unused).
`OUT_NORTHING_MIN_DEFAULTY`	The minimum northing (in meters) for which to report data (currently unused).
`OUT_SNAPSHOT_FILTER_DEFAULT`	The list of expressions (of the form `FIELD OPERATOR VALUE` and separated by semicolons) for filtering snapshot records.
`OUT_SNAPSHOT_SUPPRESS_DEFAULT`	The list of fields (separated by semicolons) not to include in the snapshot output file.
`OUT_SNAPSHOT_TIME_STEP_DEFAULT`	The frequency (in seconds) at which to report snapshot data (i.e., write it to disk).
`OUT_SUMMARY_BOX_LENGTH_DEFAULT`	The length of the summary data boxes (in meters).

Configuration File Key	Description
`OUT_SUMMARY_ENERGY_BINS_DEFAULT`	The number of bins used to cover the range of the energy summary histogram.
`OUT_SUMMARY_ENERGY_MAX_DEFAULT`	The maximum energy in the energy histogram (in cells-squared per second-squared).
`OUT_SUMMARY_FILTER_DEFAULT`	The list of expressions (of the form `FIELD OPERATOR VALUE` and separated by semicolons0 for filtering summary records.
`OUT_SUMMARY_SAMPLE_TIME_DEFAULT`	The frequency (in seconds) at which to accumulate summary data.
`OUT_SUMMARY_SUPPRESS_DEFAULT`	The list of fields (separated by semicolons) not to include in the summary output file.
`OUT_SUMMARY_TIME_STEP_DEFAULT`	The frequency (in seconds) at which to report summary data (i.e., write it to disk).
`OUT_SUMMARY_VELOCITY_BINS_DEFAULT`	The number of bins used to cover the range of the velocity summary histogram.
`OUT_SUMMARY_VELOCITY_MAX_DEFAULT`	The maximum velocity in the velocity histogram (in meters per second).

7. VOLUME THREE (*MODULES*), CHAPTER SIX (*SELECTORS/ITERATION DATABASES*)

7.1 Selector/Iteration Database Configuration File Keys

Configuration File Key	Description
ACT_FEEDBACK_FILE	The traveler IDs and generator command output
ACTIVITY_FILE	(index of) Activities.
OUT_DIRECTORY	The directory containing output data created by the simulation.
OUT_EVENT_NAME_1	The traveler event data created by microsimulation
PLAN_FILE	(index of) plans.
ROUTER_HOUSEHOLD_FILE	The household IDs that need to be rerouted (includes all households with travelers included in the ACT_FEEDBACK_FILE).
SEL_FILL_ITDB	Whether to update the iteration database.
SEL_FRUSTRATION_THRESH	f_{remode}
SEL_ITDB_FILE	The iteration database file.
SEL_REASSIGN_FRAC	$f_{reassign}$
SEL_REMODEFRAC	f_{remode}
SEL_REROUTE_FRAC	$f_{reroute}$
SEL_RETIME_FRAC	f_{retime}
SEL_USE_<field>	Directs the Selector/Iteration Database to create a corresponding field in the ITDB and fill it with data.

8. VOLUME THREE (*MODULES*), CHAPTER SEVEN (*EMISSIONS ESTIMATOR*)

8.1 Configuration File Keys Specific to the Emissions Estimator

Configuration File Key	Description
EMISSIONS_ARRAY_PARAMETERS_FILE	Contains the parameters describing the number of records and increments used in composite input files. Default = *ARRAYP.INP*
EMISSIONS_COMPOSITE_DIFF_INPUT_FILE	Contains the composite emissions for the differences in emissions and fuel consumption for current versus last timestep. Default = *arraypd.out*
EMISSIONS_COMPOSITE_INPUT_FILE	Composite vehicle emissions in 4-mph speed bins and 20-mph squared per second power bins. Default = *arrayp.out*
EMISSIONS_COMPOSITE_TYPE_DIFF_INPUT_FILE	Composite emissions for the difference in emissions and fuel consumption versus last timestep for 23 LDV subtypes. Default = *batchtotpd*
EMISSIONS_COMPOSITE_TYPE_INPUT_FILE	Composite emissions for 20 speeds, 34 power levels, and 23 LDV types. Default = *batchtotpc*
EMISSIONS_MICROSIM_VELOCITY_FILE	File name for the *readca.out* file (produced by *Readca*), which contains the reformatted microsimulation velocity summary data.
EMISSIONS_VEHICLE_COLD_DISTRIBUTION	Contains the distribution of LDVs entering a link stratified by the time-integrated, velocity-acceleration product (power) and by soak time. Default = *vehcold.dis*
EMISSIONS_VEHICLE_TYPE_DISTRIBUTION	Contains distributions by 23 LDV types. Default = *vehdist*
EMISSIONS_WRITE_DEBUG_OUTPUT	If this flag is set, the debugging files (*debug.out* and *calcsum*) will be written out. Default = 0 (do not write out debugging files)

8.2 Configuration File Keys That Must Be Set to a Specific Value for the Emissions Estimator

Configuration File Key	Description
NET_DIRECTORY	Full path name to directory containing the network tables.
NET_LINK_TABLE	Name of the link table.
NET_NODE_TABLE	Name of network's node table.
OUT_SUMMARY_BOX_LENGTH_n or OUT_SUMMARY_BOX_LENGTH_DEFAULT	Length of the summary boxes (in meters). Must be set to 30.
OUT_SUMMARY_ENERGY_BINS_n or OUT_SUMMARY_ENERGY_BINS_DEFAULT	Number of bins to cover range of energy histogram. Must be set to 7.
OUT_SUMMARY_ENERGY_MAX_n or OUT_SUMMARY_ENERGY_MAX_DEFAULT	Maximum energy for range of energies found in energy histograms. Must be set to 105.
OUT_SUMMARY_SAMPLE_TIME_n or OUT_SUMMARY_SAMPLE_TIME_DEFAULT	Frequency (in seconds) at which to accumulate data. Must be set to 1.
OUT_SUMMARY_TIME_STEP_n or OUT_SUMMARY_TIME_STEP_DEFAULT	Frequency (in seconds) at which to report data. Must be set to 3600.
OUT_SUMMARY_TYPE_n	Type of summary output to collect. Must be set to at least VELOCITY.
OUT_SUMMARY_VELOCITY_BINS_n or OUT_SUMMARY_VELOCITY_BINS_DEFAULT	Number of bins used to cover the range of the velocity histogram. Must be set to 5.
OUT_SUMMARY_VELOCITY_MAX_n or OUT_SUMMARY_VELOCITY_MAX_DEFAULT	Maximum velocity for range of velocities found in velocity histograms. Must be set to 37.5.

9. VOLUME THREE (*MODULES*), CHAPTER EIGHT (*OUTPUT VISUALIZER*)

9.1 Mandatory Output Visualizer Configuration File Keys

Configuration File Key	Description
CA_CELL_LENGTH	The length of a cell in meters. Default = 7.5
NET_ACTIVITY_LOCATION_TABLE	The name of the network activity location table or an empty activity location table.
NET_BARRIER_TABLE	The name of a network barrier table or an empty barrier table.
NET_BARRIER_TABLE	The name of a network detector table or an empty detector table.
NET_DIRECTORY	Name of directory containing the network tables.
NET_LANE_WIDTH	The width of a lane in meters. Default = 3.5 (Note: The settings for NET_LANE_WIDTH used by the Output Visualizer must be the same as those used by the output system for the vehicles to be placed properly on the network.)
NET_LINK_MEDIAN_HALFWIDTH	The distance that the links are offset from the node; must be set to ½ of NET_LANE_WIDTH. (Note: this key must be the same for collecting output and running the Output Visualizer; otherwise, vehicles will not be centered properly in lanes.)
NET_LINK_TABLE	The name of the network link table.
NET_NODE_TABLE	The name of the network node table.
NET_PARKING_TABLE	The name of the network parking table or an empty parking table.
NET_POCKET_LANE_TABLE	The name of the network pocket lane table or an empty pocket lane table.
NET_TRANSIT_STOP_TABLE	The name of network transit stop table or an empty transit stop table
OUT_SNAPSHOT_SUPPRESS_1	These keys determine what fields to suppress in the snapshot output file. Nothing needs to be suppressed, but the text vehicle evolution file size will be reduced if the key is set to: ACCELER;DRIVER;USER;LANE;NODE;DISTANCE
VIS_BOX_LENGTH	The summary box length in meters; should be 150 (meters).

9.2 Optional Output Visualizer Configuration File Keys

Configuration File Key	Description
VIS_COLORMAPS	The full path and file name of a set of colormaps produced with the *mkallbinmaps* utility to use in the Output Visualizer.
VIS_NETWORK_ACTIVITY_LOCATION_POINTSIZE	Size of an activity location point, 0.5 to 10.0.
VIS_NETWORK_BARRIER_POINTSIZE	Size of a barrier point, 0.5 to 10.0.
VIS_NETWORK_DETECTOR_POINTSIZE	Size of a detector point, 0.5 to 10.0.
VIS_NETWORK_NODE_POINTSIZE	Size of a node point, 0.5 to 10.0.
VIS_NETWORK_PARKING_POINTSIZE	Size of a parking accessory point, 0.5 to 10.0.
VIS_NETWORK_TRANSIT_POINTSIZE	Size of a transit stop point, 0.5 to 10.0.
VIS_NETWORK_VIEW_ACTIVITY_LOCATIONS	0 not to view activity locations, 1 to view activity locations.
VIS_NETWORK_VIEW_BARRIERS	0 not to view barriers, 1 to view barriers.
VIS_NETWORK_VIEW_BOXES	0 not to view boxes, 1 to view boxes.
VIS_NETWORK_VIEW_DETECTORS	0 not to view detectors, 1 to view detectors.
VIS_NETWORK_VIEW_LANE_DIVIDERS	0 not to view lane dividers, 1 to view lane dividers.
VIS_NETWORK_VIEW_LINKS	0 not to view links, 1 to view links.
VIS_NETWORK_VIEW_NODES	0 not to view nodes, 1 to view nodes.
VIS_NETWORK_VIEW_PARKING	0 not to view parking, 1 to view parking.
VIS_NETWORK_VIEW_TRANSIT	0 not to view transit stops, 1 to view transit stops.
VIS_SINGLE_BUFFERED	0 for double buffered (default), 1 for single buffered. Should always be 0 unless the videoadapter will not allow double buffering.
VIS_SLIDER_SCALE	Initial scale, 1.0 and larger; default = 1.0.
VIS_SLIDER_SPEED	Initial speed, 0.005 to 1.0; default = 1.0.
VIS_SLIDER_THRESHOLD	Initial threshold, 0.005 to 1.0; default = 1.0.
VIS_SLIDER_XROT	Initial X rotation, 0.0 to 360.0; default = 0.0.
VIS_SLIDER_YROT	Initial Y rotation, 0.0 to 360.0; default = 0.0.

Configuration File Key	Description
VIS_SLIDER_ZROT	Initial Z rotation, 0.0 to 360.0; default = 0.0
VIS_UNDERLAYFILE	The name of a file to be read in and drawn underneath the network. This configuration file key is reserved for future use and is not implemented at this time.
VIS_VEHICLE_DRAW3D	0 for 2D vehicles, 1 for 3D vehicles
VIS_VEHICLE_DRAWMODE	Coloring method for vehicles, 0 to 0 – Same color mode 1 – Color by Type mode 2 – Color by Passengers mode 3 – Color by Velocity mode 4 – Random coloring by vehicle ID 5 – Color by User field mode
VIS_VEHICLE_POINTSIZE	Size of a vehicle when it is a point, 0.5 to 10.0
VIS_XSLIDER_360DEFAULT	0 for default X rotation of 0.0, 1 for default X rotation of 360.0

10. VOLUME FOUR (*CLIBRATIONS, SCENARIOS, AND TUTORIALS*)

11. VOLUME FIVE (*SOFTWARE: INTERFACE FUNCTIONS AND DATA STRUCTURES*)

12. VOLUME SIX (*INSTALLATION*)